Status of Claims

Claims 1-6 and 17-25 are pending.

Claims 1-6 and 17-25 stand rejected.

No claims have been amended by this Response.

Remarks/Arguments

Pending claims 1-6, 17-23 and 25 have not been amended by this Response. Reconsideration and allowance of this application is requested.

Claim Rejections – 35 U.S.C. §103(a)

Claims 1-6, 17-23 and 25 stand finally rejected under 35 U.S.C. §103(a) as being unpatentable over Ishii et al. (U.S. Patent 6,288,698) in view of Beck et al. ("Motion Dithering for Increasing Perceived Image Quality for Low-Resolution Displays" 13 July 1998, pages 407-410). Claim 24 stands finally rejected under 35 U.S.C. §103(a) as being unpatentable over the above-combination, further in view of Wu et al. (U.S. Patent 6,469,708). Applicants respectfully traverse this rejection for at least the following reasons.

Independent claim 1 recites in part:

A method for processing video data...having a plurality of luminous elements to suppress a dithering pattern from appearing to a viewer observing a moving object on a picture...

...computing at least one motion vector representing the movement of a moving object on a picture from said video data in a motion estimator device of the video data processing device;

changing at least one of the phase, amplitude, spatial resolution and temporal resolution of said dithering function in accordance with said at least one motion vector representing the movement of a moving object on a picture when applying the dithering function to said video data in the dithering device of the video data processing device to suppress a dithering pattern from appearing to a viewer observing the moving object on the picture; and

outputting the dithered video data...to suppress a dithering pattern from appearing to a viewer observing the moving object on the picture on the display device (underling emphasis added).

Claim 1 is directed to a method of eliminating <u>a dithering pattern</u> appearing to a viewer while observing a moving object on a picture. This suppression is achieved by <u>altering a dithering function</u> based on <u>a motion vector</u> representative of the movement of an object on a picture. Both Ishii and Beck, alone or in combination, fail to disclose or suggest this arrangement.

The Examiner cites the gray-scale and brightness control method of Ishii et al. (Ishii) as disclosing each of the elements of claim 1, with the exception of "a motion vector representing movement of a moving object" used to change "at least one of the phase, amplitude, spatial resolution, and temporal resolution of said dithering function..." The Action cites Beck et al. (Beck) as disclosing such a feature. This rejection is unsupported by the references themselves.

Ishii "relates to computer graphics, particularly to electronics for controlling flat-panel display gray-scale and brightness." (col. 1, ll. 6-8), and makes no teaching or suggestion of a method to suppress <u>a dithering pattern</u> resulting from a moving object observed by a viewer as required by claim 1.

The Action cites col.1, ll. 35-53 and col. 2, ll. 35-38 and 46-55 as teaching the method step of "outputting the dithered data to the display...to suppress a dithering pattern from appearing to a viewer observing the moving object on the display device" as required by claim 1. Specifically, the Action recites: "Ishii et al. discloses that reduced gray-scaling, as performed by the invention, effectively smoothens gray-shade display and RGB distributed dithering (see column 2, lines 59-67)".

To the contrary, Ishii reads: "RGB distributed dithering...effectively smoothens gray-shade display, and RGB distributed dithering is applicable to TFT and STN-type panels to smoothen pseudo 256 gray-shade display." Thus, the dithering described in Ishii is used to achieve *gray shading* (by smoothing the quantization noise), as *distinct from a dithering function which suppresses a dithering pattern visible to a viewer* as required by claim 1.

In particular, the cited paragraphs teach only "[r]andomized and evenly distributed phase number control functionality eliminates <u>screen beating artifacts</u>, for example, when image includes dither and checker-like patterns." Contrary to the Examiner's assertion, this <u>does not</u> mean that a checker-like pattern (or dithering) is avoided, as it is disclosed that only "screen beating" (flickering) is suppressed. Screen beating artifacts and dithering patterns are separate, distinct conditions that may be independently visible to a viewer. Specifically, screen beating can occur when applying a dithering on an input picture which already includes a dithering (or checker-like) pattern (for example coming from a graphic card). Thus, Ishii makes no teaching or suggestion of suppressing <u>a visible dithering pattern</u> as required by claim 1, nor does the elimination of screen beating necessarily suppress the appearance of a dithering pattern to a viewer.

As noted above, the Action cites Beck as disclosing "computing at least one motion vector representing the movement of a moving object on a picture" to change "at least one of the phase, amplitude, spatial resolution, and temporal resolution of said dithering function..." as required by claim 1. Applicants respectfully disagree with this assertion.

While Beck teaches artificially moving a static picture, the resulting picture is combined with a traditional <u>static dithering</u> ("This notion of combining Motion

Dithering with a static dithering technique is key to utilizing this approach successfully", see the last line in the "Results" section of Beck). The motion vector of Beck is not used to change the dithering function as required by claim 1.

Specifically, the dithering function applied on the pixels of the display does not depend on the motion vector, contrary to the Examiner's assertion. Specifically, the Action states that the motion vector disclosed in Beck "...change[s] at least the spatial resolution (if not the temporal resolution) of the dithering since the motion vector shifts or offsets the pixels of the original image with respect to the display pixels" (underline emphasis added). See pages 408-409 of Beck.

The cited portions of Beck clearly and unambiguously teach a motion vector that changes the spatial resolution of the displayed image, rather than a motion vector which alters the dithering function as required by claim 1. As recited in Beck, a static dithering is applied to the artificially moving picture, as distinct from a motion dithering function which is altered based on the motion vector as required by the claims.

Accordingly, neither Beck nor Ishii utilizes a motion vector (or any other information related to the video) to change the phase, amplitude, spatial resolution or temporal resolution (or any other parameter) of the dithering function.

Likewise, Beck does not cure the above-described deficiencies of Ishii. Specifically Beck does not teach or suggest correcting visible dithering patterns on the display. Accordingly, as neither Beck nor Ishii discloses or suggests "applying a dithering function...to suppress a dithering pattern from appearing to a viewer observing a moving object on the picture", and neither alone or in combination discloses or suggests "changing...said dithering function in accordance with said at least one motion vector", Applicants respectfully request the withdrawal of the 35

U.S.C. §103(a) rejection of claim 1. Claims 2-6 depend directly from claim 1 and should be similarly patentable at least to the extent they depend from an allowable base claim.

Claim 17 recites limitations similar to those described above with respect to claim 1. Accordingly, claim 17 should be patentable for at least the reasons described above. Likewise, claims 18-25 should be patentable at least to the extent they depend from allowable claim 17.

Accordingly, withdrawal of the 35 U.S.C. §103(a) rejection of claims 1-6, 17-23-25 is respectfully requested.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Conclusion

Having fully addressed the Examiner's rejections it is believed that, in view of

the preceding amendments and remarks/arguments, this application stands in

condition for allowance. Accordingly, reconsideration and allowance are

respectfully solicited. If, however, the Examiner is of the opinion that such action

cannot be taken, the Examiner is invited to contact the applicants' attorney at (215)

542-5824, so that a mutually convenient date and time for a telephonic interview

may be scheduled.

Respectfully submitted,

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